A Robust STATCOM Controller For Power System Dynamic Performanceenhancement

Rahim, A.H.M.A. Al-Baiyat, S.A. Kandlawala, F.M.;Dept. of Electr. Eng., King Fahd Univ. of Pet.Miner., Dhahran;

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Summary

A robust controller for providing damping to power system transients through STATCOM devices is presented. Method of multiplicative uncertainty has been employed to model the variations of the operating points in the system. The design is carried out applying robustness criteria for stability and performance. A loop-shaping method has been employed to select a suitable open-loop transfer function, from which the robust controller is constructed. The proposed controller has been tested through a number of disturbances including three-phase faults. The robust controller designed has been demonstrated to provide extremely good damping characteristics over a good range of operating conditions